

We claim:

1. A method to determine the change in weight of parts in a furnace during a CVI/CVD process, comprising the step of: measuring the change
5 in weight of the entire furnace, including contents, during the CVI/CVD process.

2. In combination, a furnace for use in a CVI/CVD process, and a weighing device, the furnace disposed upon the weighing device, the
10 weighing device being configured to indicate the weight of the furnace.

3. A method to determine the weight change of parts during a CVI/CVD process, comprising the steps:

- a. attaching a CVI/CVD furnace to a means for weighing the
15 CVI/CVD furnace;
- b. electrically connecting an indicator unit to the means for weighing the CVI/CVD furnace;
- c. placing the parts in the furnace for the CVI/CVD process; and,
- d. monitoring the indicator unit during the CVI/CVD process for the
20 change in weight of the furnace as an indication of the change in weight of the parts therein.

4. The method of Claim 3, wherein the means for weighing the furnace comprises placing load cells under the furnace .

5. The method of Claim 3 further comprising the step of taring the indicator unit immediately before the process is commenced, such that the indicator unit reflects the change in weight of the parts.

6. The method of Claim 3,4, or 5, wherein all connections to the furnace are flexible.

7. A CVI/CVD process, comprising the steps of:

CVI/CVD depositing a binding matrix within parts disposed within the CVI/CVD furnace while weighing the entire CVI/CVD furnace, including contents, to indicate a gain in weight of said porous substrates during the process.

5

8. The process of Claim 7, further comprising the step of terminating the CVI/CVD process when the substrates have gained a prescribed amount of weight.

10

9. The process of Claim 7, further comprising the step of weighing the entire CVI/CVD furnace using at least one load cell.

15

10. The process of Claim 7, further comprising the step of taring the indicator unit immediately before the process is commenced, such that the indicator unit reflects the change in weight of the parts directly.

11. The process of Claim 7 wherein all connections to the furnace are flexible.

20

12. The process of Claim 7, further comprising the step of monitoring the rate at which the parts gain weight, wherein the rate is influenced by process parameters including furnace temperature, reactant gas flow rate, internal furnace pressure, and reactant gas reactivity, and further comprising the step of varying at least one of the parameters to achieve a desired rate.

25

13. A method to determine the weight change of parts during a CVI/CVD process, comprising the steps :

30

- a. placing the furnace on load cells;
- b. electrically connecting an indicator unit to said load cells;
- c. placing the parts in the furnace for the CVI/CVD process; and,
- d. monitoring the indicator unit during the CVI/CVD process for the change in weight of the CVI/CVD furnace.

14. Apparatus for monitoring the weight change of parts in a CVI/CVD furnace during a CVI/CVD process, comprising:

- a. load cells supporting the CVI/CVD furnace; and,**
- b. an indicator unit electrically connected to the load cells.**